REMARKS

In the outstanding Office Action, the Examiner has objected to the drawings based on a number of formal matters. In response, Applicants have amended figures 1 and 2 so that all boxes include labels now; figure 3 has been amended so that all of the text fits within the boxes; figures 9-12 have been amended so that all of the text and labels, etc. is legible. Applicants enclose herewith a set of replacement formal drawings and therefore, the current objection should be withdrawn.

In addition, Applicants have corrected the typographical errors noted by the Examiner as well as several additional instances of typographical errors. Based on the present amendments, Applicants respectfully request withdrawal of the present objection to the specification.

Claims 35-40 have been canceled without prejudice.

Claims 6, 17, 31 and 32 stand objected to based on a number of informalities. Applicants have amended these claims to correct the informalities and therefore, the present objection should be withdrawn.

Claim 31 stands rejected under 35 U.S.C. 112, first paragraph. Claim 31 has been amended to delete reference to crisp logic and therefore, this rejection is now moot.

Claims 17, 31, and 33 stand rejected under 35 U.S.C. 112, second paragraph. In response, claim 17 has been amended to delete the clause that the Examiner has highlighted; claim 31 has been amended to delete the bracketed text; and claim 33 has been amended to delete the bracketed text and the text after the clause "such as". In view of these amendments, this rejection should be withdrawn.

Claims 1-11, 14-22 and 24 stand rejected under 35 U.S.C. 102(e) as being anticipated by Quist et al. Applicants respectfully traverse this rejection on the following grounds.

First, Applicants respectfully believe that a summary of the present invention is in order and will facilitate in pointing out to the Examiner the difference between the present invention and

the disclosures of the cited prior art. The present invention, as embodied in claim 1, sets forth specific detail and requires that there is a total fault symptom strength value calculated from measured data indicating the strength of the fault. Thus, this value is a number. Then, if that value lies above a predetermined value, stored data is recalled as a function of time, fitting to a trend line and it is predicted when the total fault strength value exceeds a predetermined value.

In reading the detailed comments of the Examiner in the Office Action, it appears that the Examiner has taken a number of different parts or passages of the Quist et al. reference together without regard either for the fact that the different parts of Quist et al. relates to different features methods and processes, or the specific details of those processes. More particularly, there is a lack of motivation or suggestion for combining the different passages of the Quist et al. reference in the manner set forth by the Examiner in the Office Action.

For example, the passage of Quist et al. that the Examiner refers to and is set forth in columns 3 and 4 does describe the collecting of local information from machines, such as vibration characteristics or temperatures. It is therefore conceivable that this data may be equated to the measured data that is set forth in claim 1. However, the Quist et al. reference is completely silent and does not even suggest or contemplate that "a total fault symptom strength value", i.e., a single value, is calculated from this data. To support the position that the Quist et al. reference discloses the claimed total fault symptom strength value, the Examiner points to column 23, lines 21 to 35. However, this passage appears to be essentially only a summary of a "learning mode" as described more generally in column 24, lines 1 to 50. This does indeed describe measuring data and calculating a value from the measured data, namely the ten point moving average. However, such data is not a total fault symptom strength value since it does not indicate the strength of the fault. Instead, this value merely indicates the temperature. Applicants have reviewed the entirety of the Quist et al. reference and are unable to locate any passage where a value is described and provided and is one that represents the strength of the fault. In sum, Applicants respectfully submit that the Quist et al. reference fails to include the claimed total fault symptom strength value and therefore, a rejection under 102(e) is improper since at least one element is not disclosed in the cited reference.

Moreover, there are still further differences between the subject matter of claim 1 and Quist et al. In the present invention, only if the total fault symptom strength value is above a predetermined value is stored data for that value recalled, fitted to a trend line and tested for the predicted time when the total fault symptom strength value exceeds another predetermined value. As a result and in accordance with the present invention as embodied in claim 1, unnecessary processing for low total symptom strength values is avoided.

It appears that the Quist et al. reference uses a much more complex process for calculating anticipated life. There appears to be absolutely no suggestion that a single value is used in this regard. Instead, as set forth in page 28, lines 36 to 54, a neural network is used to calculate when a machine component is likely to fail.

In sum, the present invention sets out a method, as neatly summarized in the abstract and the figure on the title page of the published application, in which measured data is collected and combined to a single value. Then, a test is carried out as to whether that value is above a predetermined level and if so, stored data is recalled, fitted to a trend line and it is determined when the total fault symptom strength value will exceed a further predetermined value. Quist et al. clearly does not teach this method.

For at least these reasons, Applicants respectfully submit that the Quist et al. reference clearly does not disclose or even suggest the present invention since it fundamentally fails to disclose, suggest or even contemplate the calculation of a value that is indicative of the strength of the fault (namely, the total fault symptom strength value) and then performing further analysis on this value in order to determine whether steps need to be taken. Reconsideration and allowance of claim 1 are earnestly solicited.

Claims 2-3 should be allowed as depending from what should be an allowed independent claim 1.

Independent claim 4 recites a method that includes the step of combining the symptom values to give a total fault symptom strength value that indicates the strength of the fault. As

mentioned above with reference to claim 1, the Quist et al. reference fails to disclose calculating the claimed total fault symptom strength value since the reference fails to disclose calculating a value that represents the strength of the fault (once again, the Quist et al. value merely indicates temperature). Applicants therefore contend that for the same reasons stated above with reference to claim 1, reconsideration and allowance of claim 4 are in order.

Claims 5-10 should be allowed as depending from what should now be an allowed independent claim 4.

Claim 11 recites a computer program system that includes a data carrier including code for causing a computer system to carry out the steps of calculating a total fault symptom strength value from measured data indicating the strength of the fault stored in a database. In addition and similar to claim 1, only if the total fault symptom strength value is above a predetermined value is stored data for that value recalled, fitted to a trend line and tested for the predicted time when the total fault symptom strength value exceeds another predetermined value.

Accordingly, Applicants respectfully request reconsideration and allowance of claim 11 for the same reasons set forth above with reference to claim 1, namely, that the cited reference completely fails to disclose a total fault symptom strength value and the processing thereof to determine what actions need to be taken and at what time as a result of a fault condition.

Claims 12-15 should be allowed as depending from what should be an allowed independent claim 11. In addition, Applicants respectfully submit that these claims contain allowable subject matter in and of themselves. For example, claim 13 incorporates the subject matter of claims 11 and 12 and requires a particular inheritance approach defining a general object class for different types of a machine component and further requires that the machine component objects are specific instances of these object classes. Schneider describes a method for a real time control system not a fault diagnosis system and Applicants respectfully submit that there is a lack of suggestion and motivation to combine Schneider with Quist et al. The Examiner suggests that "using objects associated with components and faults would have allowed the skilled artisan to

model the system". However, this ignores that the objects in Schneider do not inherit code relating to possible faults from the general object class. Instead, in Schneider, the code is for computing systems to control real-time electro-mechanical systems, not to test them for faults. The skilled person does not want to model the system in the present invention –rather the skilled person wants to identify faults. Schneider does not teach using inheritance as specifically recited in claim 13 to identify faults. In other words, neither Schneider nor Quist et al. teaches inheritance of code relating to possible faults.

Claim 16 is an independent claim that is similar to the other claims and recites a computer program system. Accordingly,. the code of claim 16 carries out steps that include combining symptom values to give a total fault symptom strength value indicating the strength of the fault; as well as, carrying out further processing if this value exceeds another value. For the reasons stated above, particularly with respect to claim 1, Applicants respectfully request reconsideration and allowance of claim 16.

Claims 17-20 should be allowed as depending from what should be an allowed independent claim 16.

Claims 21 and 22 also recite a system that carries out a method including the steps of calculating a total fault symptom strength value indicating the strength of the fault; as well as, carrying out further processing if this value exceeds another value. For the reasons expressed above, neither of these features are disclosed or suggested in the cited reference.

Claims 23, 25-29 and 31-34 stand rejected under 35 U.S.C. 102(e) as being anticipated by Schneider et al. Applicants respectfully traverse this rejection for the following reasons.

As previously mentioned, Schneider describes a method for a real time control system not a fault diagnostic system; however, Schneider does not disclose or contemplate objects that inherit code relating to possible faults from the general object class. Instead and according to Schneider, the code is for computer systems to control real-time electro-mechanical systems, not to test such systems for faults. There is simply a lack of teaching or contemplation in Schneider

relating to the task of identifying faults. Schneider simply does not teach using a machinery fault class library in a fault detection scheme, with specific signatures being calculated from signals acquired from sensors placed at locations around the machinery. On at least this basis, reconsideration and allowance of claim 25 is

Claims 26-34 should be allowed as depending from what should be an allowed independent claim 25.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Dated: January 5, 2005

Respectfully submitted,

By_____
Edward J. Ellis
Registration No.: 40,389
DARBY & DARBY P.C.
P.O. Box 5257
New York, New York 10150-5257
(212) 527-7700
(212) 753-6237 (Fax)
Attorneys/Agents For Applicant

Attachments

AMENDMENTS TO THE DRAWINGS

The attached sheet(s) of replacements drawings Figures 1-13.

Attachment: Replacement sheet